

# EXHIBIT 5



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March 17, 2006

***OFFER OF COMPROMISE, WITHOUT PREJUDICE  
SUBJECT TO FED. R. EVID. 408***

**VIA FEDERAL EXPRESS**

Robert G. Kalik  
Chief Executive Officer  
Sensatex Inc.  
4720 Montgomery Lane, Suite 400  
Bethesda, Maryland 20814

**Re: Sensatex Patents**

Dear Bob:

Thank you for your email dated January 28, 2006. At present, we understand that you are asking Textronics to analyze U.S. Patent Nos. 6,970,731 B1 ("the '731 patent"), 6,381,482 B1 ("the '482 patent"), 6,145,551 ("the '551 patent"), 6,474,367 B1 ("the '367 patent"), and 6,941,775 B2 ("the '775 patent") for possible infringement by the NuMetrex<sup>TM</sup> sportsbra. We were disappointed that your January 28 email removed only U.S. Patent Nos. 6,315,009 B1 and 6,687,523 B1 from consideration, and that you added the '775 patent to your list. Our preliminary review of the five patents you have asserted, their prosecution histories, and the NuMetrex<sup>TM</sup> sportsbra reveals glaring reasons why those patents are not infringed. This leads Textronics to doubt that Sensatex has studied the patents, their prosecution histories, and the NuMetrex<sup>TM</sup> sportsbra in any detail before burdening Textronics with the request that Textronics study the Sensatex patents.

In an effort to resolve this situation most efficiently, we have set forth below, for the independent claims in each asserted patent, the claim limitations that we believe are not infringed, literally and under the doctrine of equivalents, along with a brief explanation of the legal and factual bases for our position. We propose that you evaluate the views we have set forth herein, and provide us with a response that specifically sets forth any reasons why, if at all,

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Sensatex disputes our positions. We believe that this approach will focus the parties' inquiry most efficiently and, if further discussions are needed, will narrow down the points that remain to be resolved. This approach will lead to a sensible resolution of this matter only if Sensatex adopts a more focused approach going forward, but we trust that Sensatex will do so in return for the courtesies Textronics is extending in this letter.<sup>1</sup>

I. U.S. Patent No. 6,970,731 B1

The '731 patent has a total of 23 claims, three of which are independent claims – 1, 7, and 17. For at least the reasons set forth below, none of the '731 patent claims is infringed by the NuMetrex™ sportsbra, either literally or under the doctrine of equivalents.

A. Claim 1

1. Claim Construction

It is now well-settled that patent claims are to be construed in the context of the intrinsic record, which comprises the patent specification and prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313-17 (Fed. Cir. 2005) (*en banc*), *cert. denied*, 2006 WL 386393 (U.S. Feb. 21, 2006). While limitations are not to be imported into the claims from the patent specification, the meaning of the claims must be determined in the context of the specification, of which the claims are a part. 415 F.3d at 1313-15. In addition, under the doctrine of prosecution history disclaimer, an applicant's statements in the prosecution history limit the interpretation of claims, so as to exclude any subject matter that was disclaimed or disavowed during prosecution to obtain allowance. *E.g.*, *Omega Eng., Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323-24 (Fed. Cir. 2003); *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985).

Claim 1's "fabric-based sensor" limitation, when read in light of the intrinsic record, and particularly when read in light of the prosecution history, should be construed to require a fabric-based sensor that has direct contact with the wearer's skin, is within a single layer of fabric, and does not bridge to another fabric-based sensor on or through a second layer of fabric.<sup>2</sup> In

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<sup>1</sup> Because noninfringement of the Sensatex patents is so clear, we have not set forth an analysis of the potential invalidity and unenforceability defenses that could be asserted by Textronics. Textronics does not waive any of those defenses and reserves the right to assert all available affirmative defenses against the Sensatex patents in the event that this matter is not resolved amicably.

<sup>2</sup> This can be seen from the '731 patent specification, which describes the fabric-based sensor as follows: "The sensor is made from knitted or woven non-insulated, conductive fabric

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addition, the plain language of claim 1's "electrical lead" limitation should be construed as having a single conductive fiber of the fabric-based sensor that acts as an electrical lead to a connector.<sup>3</sup> None of these features are found in the NuMetrex<sup>TM</sup> sportsbra.

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attached to a data-output terminal, for example a snap connector. . . . The fabric is directly contacted with a subject's body, eliminating the need for a backing material or adhesive." ('731 patent at col. 3, ll. 43-48.) In addition, and most importantly, it is seen from the prosecution history, in an April 30, 2002 amendment and response, which attempts to distinguish the prior art Flick patent by stating:

*Flick* discloses a wrap having a layer of metallized fabric made up of nylon coated with metal. The metallized layer is surrounded by layers of non-conductive fabric . . . . *The present invention, on the other hand, is comprised of a single fabric* made from individually conductive fibers and optionally with other non-conductive fibers. *The fabric of the present invention does not consist of placing a conductive layer beneath a non-conductive layer. Rather, it is the same single fabric.*

(April 30, 2002 amendment and response at 5 (emphasis added).) It is also seen in a January 23, 2003 amendment and response, in which the applicants again sought to distinguish Flick by arguing that "[t]he present invention, on the other hand, is comprised of a single fabric made from individual conductive fibers." (*Id.* at 1-2.)

In addition, the applicants argued that their invention does not involve bridging electrodes through separate pieces of fabric: "[In Flick,] electrodes 81 and 82 are bridged through fabric 83. . . . Flick requires this combination in order for the invention to work. On the other hand, the sensor of the present invention may be used independently. (April 30, 2002 amendment and response at 5.)

<sup>3</sup> This construction is also strongly supported by the prosecution history. In response to a Section 112 rejection, the applicants amended claim 1, to more clearly recite that only one of the integrated conductive fibers of the fabric-based sensor forms the electrical lead:

(b) an electrical lead for connection to a connector, the electrical lead being formed from ~~comprising~~ one of the integrated individually conductive fibers; . . .

(December 18, 2003 amendment and response at 3.) Particularly in light of this amendment, the "electrical lead" limitation should be construed as having a single conductive fiber of the fabric-

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## 2. The NuMetrex<sup>TM</sup> Sportsbra Does Not Literally Infringe Claim 1

We have compared claim 1, properly construed in light of the intrinsic record, to the electrodes on the NuMetrex<sup>TM</sup> sportsbra, which are illustrated in the figure appended as Attachment "A." Literal infringement is found only when every limitation recited in the claim appears in the accused product, *i.e.*, the properly construed claim reads on the accused product exactly. *E.g.*, *Jeneric/Pentron, Inc. v. Dillon Co.*, 205 F.3d 1377, 1382 (Fed. Cir. 2000); *Cortland Line Co. v. Orvis Co.*, 203 F.3d 1351, 1358 (Fed. Cir. 2000). There is no literal infringement of claim 1, for four reasons. First, unlike the fabric-based sensors of claim 1, the electrodes on the NuMetrex<sup>TM</sup> sportsbra are not within a single layer of fabric. Instead, the NuMetrex<sup>TM</sup> sportsbra has a first pair of fabric-based electrodes on an inner layer of fabric (for contact with the wearer's skin) and a second pair of fabric-based electrodes on an outer layer of fabric. These first and second pairs of fabric-based electrodes partially overlap each other, as shown in cross-sectional view in Attachment "A" (with first pair of fabric-based electrodes shown as 40 and 40' and second pair of fabric-based electrodes shown as 30 and 30').

Second, unlike the fabric-based sensors of claim 1, all of the electrodes on the NuMetrex<sup>TM</sup> sportsbra do not come in direct contact with the wearer's skin. As can be seen in Attachment A, the second pair of fabric electrodes on the NuMetrex<sup>TM</sup> sportsbra is separated from the wearer's skin by the inner layer of fabric.

Third, unlike the fabric-based sensors of claim 1, conductivity in the NuMetrex<sup>TM</sup> sportsbra sensors is bridged from the first pair of fabric-based electrodes to the second pair of fabric-based electrodes. This occurs via portions of the fabric-based electrodes referred to as "floats," shown in Attachment A as 44 and 44' in the first pair of fabric-based electrodes and 34 and 34' in the second pair of fabric-based electrodes. A monitoring device (shown in Attachment A as 200) can then be snap connected to snaps (shown in Attachment A as 50 and 50') positioned within the second pair of fabric-based electrodes.

Fourth, the NuMetrex<sup>TM</sup> sportsbra does not have a single conductive fiber of the fabric-based sensor that acts as an electrical lead to a connector. Instead, the NuMetrex<sup>TM</sup> sportsbra has numerous conductive fibers that are integrated to form the sensor fabric (shown as conductive yarn portions 30 and 30' in Attachment A) and make contact with snaps 50 and 50'.

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based sensor which acts as an electrical lead to a connector. *See, e.g.*, *Phillips*, 415 F.3d at 1317 (amendments made by the applicant to obtain allowance are relevant to claim interpretation).

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In sum, the NuMetrex<sup>TM</sup> sportsbra does not literally infringe claim 1, because the NuMetrex<sup>TM</sup> sportsbra does not meet claim 1's requirements that the fabric-based sensor: (1) be within a single layer of fabric; (2) have direct contact with the wearer's skin; (3) not bridge conductivity to another fabric-based sensor on or through a second layer of fabric; and (4) have a single conductive fiber that acts as an electrical lead to a connector.

### 3. The NuMetrex<sup>TM</sup> Sportsbra Does Not Infringe Claim 1 Under the Doctrine of Equivalents

Even if literal infringement is not present, infringement may be found under the doctrine of equivalents, but only when the differences between the features of the accused product or process and the claimed invention are insubstantial. *E.g., Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1517-19, 1521-22 (Fed. Cir. 1995) (*in banc*), *rev'd on other grounds*, 520 U.S. 17 (1997); *Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1015 (Fed. Cir. 1998). In analyzing infringement under the doctrine of equivalents, "[e]ach element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole." *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29 (1997).

The substantiality of the differences between the accused product or process and a claim element is assessed "according to an objective standard" and from "the vantage point of one of ordinary skill in the relevant art." *Hilton Davis*, 62 F.3d at 1519. The Federal Circuit has identified a number of factors that should be considered in determining whether the differences between the claimed invention and the accused product or process are substantial, including: (1) whether the accused product or process performs substantially same function, in substantially the same way, to achieve substantially the same result; (2) known interchangeability; (3) copying; (4) designing around; (5) independent development; and (6) other evidence relevant to the substantiality of the differences. *Id.* at 1518-20.

The doctrine of equivalents is limited by the doctrines of specification estoppel and prosecution history estoppel. Under the doctrines of specification estoppel and prosecution history estoppel, a patentee may not rely on the doctrine of equivalents to show infringement where it has made limiting statements in the specification or the prosecution history, respectively, that disclaim the accused subject matter. *E.g., J & M Corp. v. Harley-Davidson, Inc.*, 269 F.3d 1360, 1366 (Fed. Cir. 2001) (specification estoppel); *Allen Eng. Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1350 (Fed. Cir. 2002) (prosecution history estoppel). Thus, arguments made to obtain the patent, such as distinctions made over the prior art, create an estoppel. *E.g., Haynes Int'l, Inc. v. Jessup Steel Co.*, 8 F.3d 1573, 1579 (Fed. Cir. 1993); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1581-83 (Fed. Cir. 1995).



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When a patentee originally claimed subject matter that is alleged to infringe, but narrows the claim, either voluntarily, or in response to a rejection, the patentee is presumed to have surrendered all subject matter between the broader and narrower language. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 733-34, 740 (2002). Stated another way, narrowing amendments made for reasons of patentability are presumed to give rise to prosecution history estoppel. *Festo*, 535 U.S. at 735-37. Determining the proper scope of the estoppel requires examination of the subject matter surrendered by the narrowing amendment. *Id.* at 737.

The patentee bears the burden of proving that an amendment does not surrender an alleged equivalent. *Id.* at 740. The patentee may rebut the presumption of total surrender by showing that it did not surrender an alleged equivalent on any of three possible grounds:

- The equivalent may have been unforeseeable at the time of the application;
- The rationale underlying the amendment may bear no more than a tangential relation to the equivalent in question; or
- There may be some other reason suggesting that the patentee could not reasonably be expected to have described the insubstantial substitute in question.

*Id.* at 740-41. In these cases, the patentee can overcome the presumption that prosecution history estoppel bars a finding of equivalence. *Id.* at 741.

When the reason for an amendment is not apparent from the prosecution history, the amendment is presumed to have been made for reasons of patentability, and the burden is on the patentee to show that the amendment was made for some other reason. *Id.* at 739-40. When the patentee is unable to explain the reason for amendment, the courts presume that the patentee surrendered all subject matter between the broader and narrower language. *Id.* A patentee's rebuttal of this presumption is restricted to the evidence in the prosecution history record. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1366-67 (Fed. Cir. 2003).

Prosecution history estoppel will preclude a claim by Sensatex that the NuMetrex<sup>TM</sup> sportsbra infringes claim 1 of the '731 patent under the doctrine of equivalents. During prosecution of the '731 patent, the applicants repeatedly argued in response to rejections that their invention "is comprised of a single fabric" (April 30, 2002 amendment and response, pages 4-5; January 23, 2003 amendment and response, pages 1-2) and further argued that "[t]he fabric of the present invention does not consist of placing a conductive layer beneath a non-conductive layer." (April 30, 2002 amendment and response, page 5.) In addition, they attempted to distinguish the claimed invention from the prior art by arguing that, unlike the claimed invention, the prior art shows electrodes that are "bridged through the fabric." (*Id.*) Thus, the prosecution

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history contains clear disavowals of several features of the NuMetrex<sup>TM</sup> sportsbra, including fabric-based sensors on more than one layer of fabric (*see, e.g.*, Att. A 30 and 40), a conductive layer beneath a non-conductive layer (*see, e.g., id.* 40 and 72), and electrodes that bridge across fabric layers (*see, e.g., id.* 34 and 44). Because the applicants disavowed these features of the NuMetrex<sup>TM</sup> sportsbra in an effort to distinguish the prior art and obtain allowance, Sensatex is estopped from re-capturing these features under the doctrine of equivalents.

As discussed in footnote 3 *supra*, the applicants also amended claim 1 in response to a Section 112 rejection to more clearly recite that only one of the integrated conductive fibers of the fabric-based sensor forms the electrical lead. Using a self-serving, boilerplate disclaimer, the applicants asserted that this amendment was “cosmetic in nature[,]” not made “as a condition for obtaining a patent[,]” and “non-narrowing[,]” all in an attempt to avoid a prosecution history estoppel under the Supreme Court’s decision in *Festo*. (December 18, 2003 amendment and response, page 10.) The applicants’ self-serving assertions do not withstand scrutiny because the amendment clearly narrowed the claim, so that only a single fiber, instead of many fibers, could be used to make the electrical lead. In *Festo*, the Supreme Court made clear that prosecution history would apply to such a narrowing amendment. *Festo*, 535 U.S. at 735-37.

In addition, the applicants’ self-serving assertions are undermined by their argument that the examiner had improperly combined the prior art Allison and Flick patents to make a *prima facie* case of obviousness. (December 18, 2003 amendment and response, page 17.) The examiner had asserted that Flick clearly disclosed the use of “a . . . fabric sensor wherein one of the fibers can be the electrical lead . . .” and that this disclosure, combined with Allison (U.S. Patent No. 4,016,868), rendered the invention of claim 1 obvious. (*Id.*) The applicants argued in response that “the Office has again made a subjective conclusory statement that ‘it would have been obvious to use one of the fibers of the fabric in Allison as the lead to better integrate the structure.’” (*Id.*) In so doing, the applicants were unquestionably relying on the amended language of claim 1 to distinguish over the prior art.

In these circumstances, the patentee will be estopped from re-capturing under the doctrine of equivalents the subject matter disavowed by its amendment -- *i.e.*, the use of more than one fiber to make the electrical lead. Because the NuMetrex<sup>TM</sup> sportsbra uses numerous conductive fibers to act as the electrical lead to its snap connectors, Sensatex will be estopped from asserting infringement of this claim limitation under the doctrine of equivalents.

Moreover, there does not appear to be any basis on which Sensatex will be able to narrow the scope of the prosecution history estoppel arising from its amendment of claim 1. Because the subject matter surrendered by the “single conductive fiber” amendment was known in the prior art, its use was clearly foreseeable by the applicants. In addition, because the amendment was made, at least in part, to distinguish prior art, it bears a direct relation to multiple conductive fibers feature of the NuMetrex<sup>TM</sup> sportsbra. Finally, there does not appear to be any other reason



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why the applicants could not have described that feature when drafting claim 1, particularly because it was known in the prior art. *Festo*, 344 F.3d at 1369.

B. Claim 7

1. Claim Construction

Like independent claim 1, independent claim 7 recites the use of a “fabric-based sensor” having “one or more individually conductive fibers integrated therein by the process of knitting or weaving the fabric . . . .” In addition, like claim 1, the literal language of claim 7 recites “an electrical lead formed from *one of* the integrated individually conductive fibers.” (emphasis added). For the reasons discussed in Part I.A.1. *supra* with respect to claim 1, the literal language of the claim 7, when read in light of the specification and the prosecution history, should be construed to require a fabric-based sensor that has direct contact with the wearer’s skin, is within a single layer of fabric, and does not bridge to another fabric-based sensor on or through a second layer of fabric. *See, e.g., Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001) (“a claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent.”). In addition, as in claim 1, the plain language of claim 7’s “electrical lead” limitation should be construed as having a single conductive fiber of the fabric-based sensor that acts as an electrical lead to a connector. *See, e.g., Rexnord*, 274 F.3d at 1342.

Claim 7 further recites “providing a wearable motherboard” comprising a “sensing component . . . wherein the sensing component includes an insulated electrical conductive component comprising one or more individually insulated conductive fibers.” With regard to the term “wearable motherboard,” the specification of the ‘731 patent incorporates by reference the disclosure of the ‘482 patent. (*See* ‘731 patent, col. 2, ll. 51-53.)

The ‘482 patent defines a “wearable motherboard” as a fabric incorporating a “wearable information infrastructure” (*see* ‘482 patent, col. 4, ll. 30-49), which is illustrated and exemplified as a network of individually insulated conductive fibers extending throughout the fabric. (*See id.*, Figs. 3-8 and 14-19.) While the ‘482 patent specification does not expressly define the term “individually insulated conductive fiber,” it does describe the preferred electrical conductive fibers as doped nylon fiber with conductive inorganic particles and insulated with PVC sheath, insulated stainless steel fiber, or thin gauge copper wire with a polyethylene sheath. (*Id.*, col. 2, ll. 13-16; *see also id.*, col. 11, l. 62, to col. 12, l. 25.) In light of the ‘482 specification, a reasonable construction of the term “individually insulated conductive fiber” is a fiber having a conductive core component that is surrounded by or sheathed with an insulating material, such that there is no direct electrical contact between the conductive core component and the skin of a wearer.

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This construction is strongly supported by the prosecution history of the '482 patent. During prosecution of the '482 patent, the examiner rejected claims drawn to the "information infrastructure" and its "insulated electrical conductive component" as being anticipated under 35 U.S.C. § 102(b) by Flick. In response to this rejection, the applicants argued:

Applicants further note the differences between the Flick patent and the invention . . . . Flick provides no motivation to alter his invention to prevent direct electrical contact with the skin. In fact, the purpose of the Flick invention is achieved through such direct electrical contact. *The claimed invention, on the other hand, could not have direct electrical contact due to the individual insulation of each fiber.* The purpose of Flick, therefore, is the opposite of that of the present invention.

(May 15, 2001 amendment, page 9 (emphasis added); *see also, e.g., id.* at page 8 ("The claimed invention, however, has no direct 'electrical contact' between the wearer and the conducting fibers in the garment.")).

The applicants' arguments during prosecution of the '482 patent characterizing the "information infrastructure" and "insulated electrical conductive component" terms are relevant to interpretation of the '731 patent claims, because the '482 specification (incorporated by reference into the '731 patent) expressly defines the term "wearable motherboard" as a fabric incorporating a "wearable information infrastructure" (*see* '482 patent, col. 4, ll. 30-49), the "wearable motherboard" limitation of claim 7 expressly includes, *inter alia*, an "insulated electrical conductive component," and claims submitted during prosecution of both the '731 and '482 patents used the term "insulated electrical conductive component" (*compare* December 18, 2003 amendment and response, page 7 *with* May 15, 2001 amendment, page 2). *See, e.g., Jonsson v. The Stanley Works*, 903 F.2d 812, 818-20 (Fed. Cir. 1990) (prosecution history of parent application is relevant to understanding scope of claims issuing in continuation-in-part application); *accord, Mark I Marketing Corp. v. R.R. Donnelley & Sons Co.*, 66 F.3d 285, 291 (Fed. Cir. 1995) (same).

As seen with respect to claim 1, where the patentee has unequivocally disavowed subject matter to obtain a claim, the doctrine of prosecution history disclaimer narrows the meaning of the claim congruent with the scope of the surrender. *E.g., Omega Eng.*, 334 F.3d at 1324. Based on the applicants' arguments made during prosecution of the '482 patent, claim 7 should not be construed to encompass conductive fiber that has direct electrical contact between its conductive core and the wearer's skin.

The prosecution history of the '482 patent also provides further guidance on construction of the terms "information infrastructure" and "wearable motherboard" as they are used in the '731 patent. For example, in response to a rejection by the examiner under 35 U.S.C. § 112,

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second paragraph, that the term “information infrastructure” was indefinite, the applicants argued:

Applicants note that the claimed fabric functions as an “information infrastructure” into which appropriate sensors and/or other devices can be plugged. *Applicants are not claiming the sensors or other devices*, rather they set forth the underlying foundation or basic framework, i.e., “infrastructure,” which processes the information obtained from these devices that are plugged into the infrastructure. As described throughout the specification, the fabric of the present invention is akin to a computer motherboard. The specification provides a complete description of this “wearable motherboard . . . .”

(November 27, 2000 amendment and response, page 7 (emphasis added).) Thus, the applicants emphasized during prosecution that an “information infrastructure” is not to be understood as incorporating fabric-based sensors but, rather, acts as a “framework” for processing information from them. A “wearable motherboard,” in turn, can be understood as a fabric containing such information infrastructure.

In addition, in responding to a rejection under 35 U.S.C. § 102(b) that the claims were anticipated by U.S. Patent No. 5,450,845 to Axelgaard (“Axelgaard”), the applicants argued:

The conductive patches described by Axelgaard are functionally equivalent to the sensors used in hospitals for EKG studies. In contrast, the present invention embodies the processing center into which the electrodes of Axelgaard would plug. Additionally, the flexible material of the ‘845 patent differs from the fabric claimed in the present application since the conductive fibers in Axelgaard are uninsulated, while the electrically conductive component of the present invention is insulated. Moreover, the electrode system in Axelgaard consists of several layers, including a conductive layer, a non-conductive layer and a hard-wired electrode. *In contrast, the present invention incorporates fully conductive fibers as an integral part of the fabric (i.e., woven or knitted within the comfort component layer of the fabric), and there are no multiple layers affixed to one another.* Thus, there is no direct electrical contact between the wearer and the conducting fibers of the fabric . . . .

(November 27, 2000 amendment and response, pages 8-9 (emphasis added).)

The applicants further noted that:

[The prior art] also relies on multiple layers—conductive and non-conductive—to achieve the desired stimulation of the area. The fabric of the present invention,

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*however, is not multi-layered and includes an insulated integrated information infrastructure . . . .*

(*Id.* at 9 (emphasis added); *see also* May 15, 2001 amendment and response, page 8 (“the claimed invention relies on conductive fibers which are individually insulated and integrated into the fabric of the claimed invention.”).) Thus, during prosecution of the ‘482 patent, the applicants characterized the “information infrastructure,” and, therefore, the “wearable motherboard” claimed in the ‘731 patent, as incorporating individually insulated conductive fibers into a single layer of fabric via weaving or knitting.

In sum, in view of the specification and prosecution history relating to claim 7’s “wearable motherboard” limitation, the phrase “wearable motherboard . . . comprising . . . a sensing component . . . wherein the sensing component includes an insulated electrical conductive component comprising one or more individually insulated conductive fibers,” should be construed to at least require an insulated conductive fiber that is integrated via knitting or weaving within a single layer of fabric, wherein the insulation surrounding the conductive portion of the fiber electrically shields the conductive portion from the wearer’s skin, so there is no direct electrical contact between the wearer and the conducting fibers in the garment.

## 2. The NuMetrex<sup>TM</sup> Sportsbra Does Not Literally Infringe Claim 7

Claim 7, properly construed in light of the specification and the prosecution history, is not literally infringed by the NuMetrex<sup>TM</sup> sportsbra, for the following reasons:

First, unlike the fabric-based sensor of claim 7, the electrodes on the NuMetrex<sup>TM</sup> sportsbra are not within a single layer of fabric. (*See* discussion in Part I.A.2. *supra*.)

Second, unlike the fabric-based sensors of claim 7, all of the electrodes on the NuMetrex<sup>TM</sup> sportsbra do not come in direct contact with the wearer’s skin. As discussed in Part I.A.2. *supra*, the second pair of fabric electrodes on the NuMetrex<sup>TM</sup> sportsbra is separated from the wearer’s skin by the inner layer of fabric.

Third, unlike the fabric-based sensors of claim 7, conductivity in the NuMetrex<sup>TM</sup> sportsbra sensors is bridged from the first pair of fabric-based electrodes to the second pair of fabric-based electrodes. (*See id.*)

Fourth, the NuMetrex<sup>TM</sup> sportsbra does not have a single conductive fiber of the fabric-based sensor that acts as an electrical lead to a connector. (*See id.*)

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Fifth, unlike the wearable motherboard limitation of claim 7, in which the conductive fibers are insulated and do not have electrical contact with the wearer's skin, the NuMetrex<sup>TM</sup> sportsbra has uninsulated conductive fibers that do make direct contact with the wearer's skin.

Sixth, unlike the conductive fibers of the claimed wearable motherboard, which are integrated into a single layer of fabric, the conductive fibers in the NuMetrex<sup>TM</sup> sportsbra are integrated into two layers of fabric. (*See id.*)

### 3. The NuMetrex<sup>TM</sup> Sportsbra Does Not Infringe Claim 7 Under the Doctrine of Equivalents

As with claim 1, prosecution history estoppel precludes Sensatex from arguing that the NuMetrex<sup>TM</sup> sportsbra infringes claim 7 under the doctrine of equivalents. The prosecution history of the fabric-based sensor limitation clearly disavows several features of the NuMetrex<sup>TM</sup> sportsbra, including fabric-based sensors on more than one layer of fabric, a conductive layer beneath a non-conductive layer, and electrodes that bridge across two fabric layers. Because the applicants disavowed these features of the NuMetrex<sup>TM</sup> sportsbra in an effort to distinguish the prior art and obtain allowance, Sensatex is estopped from re-capturing these features under the doctrine of equivalents. *Allen Eng.*, 299 F.3d at 1350 (argument-based estoppel affecting a limitation in one claim will also extend to all claims in which that limitation appears); *Southwall Techs.*, 54 F.3d 1584 (same).

In addition, in response to an indefiniteness rejection under Section 112, the applicants amended claim 7 to recite that only one of the integrated conductive fibers of the fabric-based sensor forms an electrical lead. (June 15, 2004 amendment and response, pages 4, 8.) In these circumstances, Sensatex is estopped from re-capturing under the doctrine of equivalents the subject matter disavowed by the amendment – *i.e.*, the use of more than one fiber to make the electrical lead. Because the NuMetrex<sup>TM</sup> sportsbra uses numerous conductive fibers to act as the electrical lead to its snap connectors, Sensatex is estopped from asserting infringement of this limitation under the doctrine of equivalents. And, as discussed in Part I.A.3. *supra*, there does not appear to be any basis on which Sensatex will be able to narrow the scope of the prosecution history estoppel arising from this amendment of claim 7.

Prosecution history estoppel also precludes Sensatex from arguing that the NuMetrex<sup>TM</sup> sportsbra infringes the wearable motherboard limitation under the doctrine of equivalents. During prosecution of the '482 patent as it relates to the "wearable motherboard" claim term, the applicants argued, in response to a Section 102(b) rejection over Flick, that the claimed invention could not have direct electrical contact with the wearer's skin, because of the individual insulation of each conductive fiber. (*E.g.*, May 15, 2001 amendment and response, pages 8-9; *see also* November 27, 2000 amendment and response, pages 8-9.) The applicants also attempted to distinguish the prior art Axelgaard reference on the ground that, unlike the claimed



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invention, Axelgaard had more than one layer of fabric, and the fibers in Axelgaard are uninsulated. (*Id.*) The NuMetrex<sup>TM</sup> sportsbra has precisely the subject matter disclaimed during prosecution – *i.e.*, uninsulated conductive fibers that are integrated into two layers of fabric and have direct contact with the wearer's skin. Thus, Sensatex will be estopped from asserting infringement of the wearable motherboard limitation under the doctrine of equivalents.

### C. Claim 17

#### 1. Claim Construction

Like claim 1, independent claim 17 recites the use of a “fabric-based sensor” having “one or more individually conductive fibers integrated therein by the process of knitting or weaving the fabric . . . .” For the reasons stated in Part I.A.1. *supra* with respect to claim 1, the literal language of the “fabric-based sensor” limitation of claim 7, read in light of the specification and prosecution history, should be construed to require a fabric-based sensor that has direct contact with the wearer's skin, is within a single layer of fabric, and does not bridge to another fabric-based sensor on or through a second layer of fabric. *See, e.g., Rexnord*, 274 F.3d at 1342.

Like claim 7, claim 17 also recites “providing a wearable motherboard” comprising a “sensing component . . . wherein the sensing component includes an insulated electrical conductive component comprising one or more individually insulated conductive fibers.” For the reasons discussed in Part I.B.1. *supra* with respect to claim 7, the literal language of these limitations, read in light of the specification and prosecution history, should be construed to at least require an insulated conductive fiber that is integrated via knitting or weaving within a single layer of fabric, wherein the insulation surrounding the conductive portion of the fiber electrically shields the conductive portion from the wearer's skin, so there is no direct electrical contact between the wearer and the conducting fibers in the garment. *Id.*

#### 2. The NuMetrex<sup>TM</sup> Sportsbra Does Not Literally Infringe Claim 17

Claim 17, properly construed in light of the specification and prosecution history, is not literally infringed by the NuMetrex<sup>TM</sup> sportsbra, for the following reasons:

First, unlike the fabric-based sensor of claim 17, the electrodes on the NuMetrex<sup>TM</sup> sportsbra are not within a single layer of fabric. (*See* discussion in Part I.A.2. *supra*.)

Second, unlike the fabric-based sensors of claim 17, all of the electrodes on the NuMetrex<sup>TM</sup> sportsbra do not come in direct contact with the wearer's skin. As discussed in Part II.A.2. *supra*, the second pair of fabric electrodes on the NuMetrex<sup>TM</sup> sportsbra is separated from the wearer's skin by the inner layer of fabric.

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Third, unlike the fabric-based sensors of claim 17, conductivity in the NuMetrex<sup>TM</sup> sportsbra sensors is bridged from the first pair of fabric-based electrodes to the second pair of fabric-based electrodes. (*See id.*)

Fourth, unlike the wearable motherboard limitation of claim 17, in which the conductive fibers are insulated and do not have electrical contact with the wearer's skin, the NuMetrex<sup>TM</sup> sportsbra has uninsulated conductive fibers that do make direct contact with the wearer's skin.

Fifth, unlike the conductive fibers of the claimed wearable motherboard, which are integrated into a single layer of fabric, the conductive fibers in the NuMetrex<sup>TM</sup> sportsbra are integrated into two layers of fabric. (*See id.*)

3. The NuMetrex<sup>TM</sup> Sportsbra Does Not Infringe  
Claim 17 Under the Doctrine of Equivalents

Because claim 17 has the same "fabric-based sensor" limitation as claim 1, and the same "wearable motherboard" limitation as claim 7, the same prosecution history estoppel that applies to claims 1 and 7 preclude any argument that the NuMetrex<sup>TM</sup> sportsbra infringes claim 17 under the doctrine of equivalents. *See, e.g., Allen Eng.*, 299 F.3d at 1350 (argument-based estoppel affecting a limitation in one claim will also extend to all claims in which that limitation appears); *Southwall Techs.*, 54 F.3d at 1584 (same).

D. None of the '731 Patent's Dependent Claims  
Are Infringed by the NuMetrex<sup>TM</sup> Sportsbra

A dependent claim, by statute, incorporates all the limitations of the independent claim to which it refers, and specifies a further limitation of the subject matter claimed. 35 U.S.C. § 112. One cannot infringe a dependent claim unless also infringing the parent or base claim on which it depends. *E.g., Jeneric/Pentron*, 205 F.3d at 1383; *Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989). Where, as here, none of the '731 patent's independent claims is infringed by the NuMetrex<sup>TM</sup> sportsbra, it follows *a fortiori* that none of the '731 patent's dependent claims is infringed, and no separate analysis of the dependent claims is needed. *E.g., Oak Tech., Inc. v. U.S. Int'l Trade Comm'n*, 248 F.3d 1316, 1323 n.4 (Fed. Cir. 2001); *Strattec Security Corp. v. General Automotive Supply Co.*, 126 F.3d 1411, 1416 (Fed. Cir. 1997).

II. U.S. Patent No. 6,381,482 B1

The '482 patent has 31 claims, two of which are independent claims – 1 and 13. Claim 1 of the '482 patent recites a fabric comprising a comfort component as the base of the fabric, the comfort component including an information infrastructure component integrated within it, the information infrastructure comprising a penetration detection component and/or an electrical

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conductive component. The electrical conductive component comprises “one or more individually insulated conductive fibers.”

Claim 13 recites a fabric comprising a comfort component as its base, and a plurality of signal transmission paths integrated within the comfort component to form the fabric. The plurality of signal transmission paths includes a penetration detection component and/or an electrical conductive component, and the electrical conductive component comprises “one or more individually insulated conductive fibers.”

For at least the reasons set forth below, none of the ‘482 patent claims is infringed by the NuMetrex<sup>TM</sup> sportsbra, either literally or under the doctrine of equivalents.

A. Claim 1

1. Claim Construction

Claim 1’s “fabric,” “information infrastructure,” “penetration detection component,” and “electrical conductive component” limitations, interpreted in light of the plain language of the claim, as well as the specification and prosecution history, should be construed to require that the claimed fabric include either a penetration detection component or an electrical conductive component, and that the electrical conductive component incorporate individually insulated conductive fibers into a single layer, via weaving or knitting, with no direct electrical contact between the wearer and the conducting fibers of the fabric.

The “information infrastructure” limitation in claim 1 is drafted in “Markush” format – *i.e.*, it claims an information infrastructure component “being selected *from the group consisting of*, individually or in any combination, a penetration detection component and an electrical conductive component . . . .” (‘482 patent, col. 16, ll. 37-41.) Claims written in this format are ordinarily considered to be “closed,” that is, they require the presence of one, and only one, of the components listed as members of the group. *E.g., Abbott Labs. v. Baxter Pharm. Prods., Inc.*, 334 F.3d 1274, 1280-81 (Fed. Cir. 2003). Here, the applicants arguably “opened” the claimed group of components by adding the phrase “individually or in any combination.” Nonetheless, it is clear from the plain meaning of this language that at least one of either the penetration detection component, or the electrical conductive component, must be present.

Interpretation of the claimed fabric’s electrical conductive component as incorporating individually insulated conductive fibers into a single layer, via weaving or knitting, with no direct electrical contact between the wearer and the conducting fibers of the fabric, is strongly supported by the prosecution history of the ‘482 patent. For example, in responding to a rejection under Section 102(b) that the claims were anticipated by Axelgaard, the applicants argued:

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The conductive patches described by Axelgaard are functionally equivalent to the sensors used in hospitals for EKG studies. In contrast, the present invention embodies the processing center into which the electrodes of Axelgaard would plug. *Additionally, the flexible material of the '845 patent differs from the fabric claimed in the present application since the conductive fibers in Axelgaard are uninsulated, while the electrically conductive component of the present invention is insulated.* Moreover, the electrode system in Axelgaard consists of several layers, including a conductive layer, a non-conductive layer and a hard-wired electrode. *In contrast, the present invention incorporates fully conductive fibers as an integral part of the fabric (i.e., woven or knitted within the comfort component layer of the fabric), and there are no multiple layers affixed to one another.* Thus, there is no direct electrical contact between the wearer and the conducting fibers of the fabric . . . .

(November 27, 2000 amendment and response, pages 8-9 (emphasis added).)

The applicants further noted that:

[The prior art] also relies on multiple layers—conductive and non-conductive—to achieve the desired stimulation of the area. The fabric of the present invention, however, *is not multi-layered and includes an insulated integrated information infrastructure . . . .*

(*Id.* at page 9 (emphasis added); *see also* May 15, 2001 amendment and response, page 8 (“the claimed invention relies on conductive fibers which are individually insulated and integrated into the fabric of the claimed invention.”).) Thus, during prosecution of the ‘482 patent, the applicants characterized the “fabric” and “electrical conductive component” of claim 1 as incorporating individually insulated conductive fibers into a single layer via weaving or knitting, with no direct electrical contact between the wearer and the conducting fibers of the fabric.

As seen with respect to the ‘731 patent, where the patentee has unequivocally disavowed subject matter to obtain a claim, the doctrine of prosecution history disclaimer narrows the meaning of the claim congruent with the scope of the surrender. *E.g., Omega Eng.*, 334 F.3d at 1324; *Standard Oil*, 774 F.3d at 452. Thus, based on the plain meaning of the claim terms, the specification, and the prosecution history, it is our opinion that a reasonable court would construe the terms “fabric,” “information infrastructure,” and “electrical conductive component” in claim 1 to require that the claimed fabric include either a penetration detection component or an electrical conductive component, and that the electrical conductive component incorporate individually insulated conductive fibers into a single layer, via weaving or knitting, with no direct electrical contact between the wearer and the conducting fibers of the fabric.

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2. The NuMetrex<sup>TM</sup> Sportsbra Does Not Literally Infringe Claim 1

We have compared claim 1 of the '482 patent, properly construed in light of the intrinsic record, to the NuMetrex<sup>TM</sup> sportsbra. It is readily apparent that claim 1 is not literally infringed by the NuMetrex<sup>TM</sup> sportsbra, for the following reasons:

First, unlike the claimed fabric, the NuMetrex<sup>TM</sup> sportsbra lacks any penetration detection component. There are no optical fibers or other means in the NuMetrex<sup>TM</sup> sportsbra for detecting penetration of the fabric.

Second, in the event that the information infrastructure of the accused product has an electrical conductive component for monitoring vital signs, claim 1, properly construed in light of the specification and prosecution history, requires that the conductive fibers of that component be integrated into a single layer of fabric, that the conductive fibers be individually insulated, and that there not be direct electrical contact between the conductive fibers and the wearer's skin. Unlike the conductive fibers of claim 1, all of the conductive fibers in the NuMetrex<sup>TM</sup> sportsbra are *uninsulated*. In addition, the conductive fibers in the NuMetrex<sup>TM</sup> sportsbra are integrated into two layers of fabric, and they do have electrical contact with the wearer's skin. Thus, the "electrical conductive component" limitation of claim 1 is clearly not met by the NuMetrex<sup>TM</sup> sportsbra.

There can be no literal infringement even if only one limitation is missing in the accused product. *E.g.*, *Cortland Line*, 203 F.3d at 1358 (no literal infringement unless "every limitation recited in the claim appear[s] in the accused device . . ."); *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934 (Fed. Cir. 1987) (*en banc*) (absence of a single claim limitation "negates the possibility of finding literal infringement"). Here, because none of the "fabric," "information infrastructure," "penetration detection component," and "electrical conductive component" limitations recited in claim 1 is present in the NuMetrex<sup>TM</sup> sportsbra, the NuMetrex<sup>TM</sup> sportsbra does not literally infringe claim 1.

3. Claim 1 Is Not Infringed Under the Doctrine of Equivalents

The "fabric" and "information infrastructure" limitations of claim 1 encompass either "a penetration detection component" or an "electrical conductive component," neither of which is literally present in the NuMetrex<sup>TM</sup> sportsbra. None of these limitations is infringed under the doctrine of equivalents, for the following reasons:

First, there is nothing whatsoever in the NuMetrex<sup>TM</sup> sportsbra that corresponds, either functionally or structurally, to the claimed penetration detection component of claim 1. It is well-settled that there can be no infringement under the doctrine of equivalents when a limitation is completely missing from an accused device. *E.g.*, *Sage Prods., Inc. v. Devon Indus., Inc.*, 126



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F.3d 1420, 1424-26 (Fed. Cir. 1997); *General Am. Trans. Corp. v. Cryo Trans, Inc.*, 93 F.3d 766, 771 (Fed. Cir. 1996).

Second, amendment-based prosecution history estoppel should preclude any argument that the NuMetrex<sup>TM</sup> sportsbra infringes the “penetration detection component” or the “electrical conductive component” limitations under the doctrine of equivalents. The applicants added both of these narrowing limitations to claim 1 in a November 27, 2000 amendment and response to the examiner’s rejection of claim 1 for anticipation by Axelgaard and Flick. (November 27, 2000 amendment and response, pages 3, 8-9, 11.) In addition, the applicants added to the “electrical conductive component” limitation the narrowing phrase “said electrical conductive component comprising one or more individually insulated conductive fibers” in response to the examiner’s continued rejection of claim 1 over Flick. (October 30, 2001 amendment and response, pages 6, 8.)

In these circumstances, it is beyond genuine dispute that the patentee should be estopped from re-capturing under the doctrine of equivalents the subject matter disavowed by its amendments – *i.e.*, a fabric that lacks a penetration detection component and has an electrical conductive component comprising uninsulated conductive fibers. Because the NuMetrex<sup>TM</sup> sportsbra lacks any penetration detection component and uses uninsulated fibers to monitor vital signs, Sensatex is estopped from asserting infringement of this claim limitation under the doctrine of equivalents.

There does not appear to be any basis on which Sensatex will be able to narrow the scope of the prosecution history estoppel arising from its amendments of claim 1. Because the subject matter surrendered by these amendments was known in the prior art, its use was clearly foreseeable by the applicants. In addition, because the amendments were made, at least in part, to distinguish prior art, it bears a direct relation to the uninsulated fibers used in the NuMetrex<sup>TM</sup> sportsbra. Finally, there does not appear to be any other reason why the applicants could not have described the missing features when drafting claim 1, particularly because they were known in the prior art. *Festo*, 344 F.3d at 1369.

Third, during prosecution of the ‘482 patent as it relates to the “electrical conductive component” claim term, the applicants argued, in response to a Section 102(b) rejection over Flick, that the claimed invention could not have direct electrical contact with the wearer’s skin, because of the individual insulation of each conductive fiber. (*E.g.*, May 15, 2001 amendment and response, pages 8-9; *see also* November 27, 2000 amendment and response, pages 8-9.) The applicants also attempted to distinguish the prior art Axelgaard reference on the ground that, unlike the claimed invention, Axelgaard had more than one layer of fabric, and the fibers in Axelgaard are uninsulated. (*Id.* at pages 8-9.) The NuMetrex<sup>TM</sup> sportsbra has precisely the subject matter disclaimed during prosecution – *i.e.*, uninsulated conductive fibers that are integrated into two layers of fabric and have direct contact with the wearer’s skin. Thus,

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argument-based prosecution history estoppel also precludes any assertion that the NuMetrex<sup>TM</sup> sportsbra infringes the “electrical conductive component” limitation under the doctrine of equivalents.

For all these reasons, Sensatex may not assert infringement of the “penetration detection component” and the “electrical conductive component” limitations under the doctrine of equivalents.

B. Claim 13

1. Construction of Claim 13’s “Fabric,” “Plurality of Signal Transmission Paths,” “Penetration Detection Component,” and “Electrical Conductive Component” Limitations

Claim 13 of the ‘482 patent is similar to claim 1, the main difference being that claim 13 uses the term “plurality of signal transmission paths” in place of the “information infrastructure” limitation recited in claim 1. Although claim 13 is not in Markush form, it does recite that the plurality of signal transmission paths “include either a penetration detection component or an electrical conductive component . . . .” Based on the presence of the transitional word “include,” the plurality of signal transmission paths, like the information infrastructure limitation component of claim 1, should be construed to require the presence of at least a penetration detection component or an electrical conductive component. *E.g., Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1344-45 (Fed. Cir. 2003) (“include” is a term of art in claim language which means that the named elements are essential).

For this reason, and the reasons set forth in Part II.A.1. above as to claim 1, claim 13’s “fabric,” “plurality of signal transmission paths,” “penetration detection component,” and “electrical conductive component” limitations, interpreted in light of the plain language of the claim, as well as the specification and prosecution history, should be construed to require that the claimed fabric include either a penetration detection component or an electrical conductive component, and that the electrical conductive component incorporate individually insulated conductive fibers into a single layer, via weaving or knitting, with no direct electrical contact between the wearer and the conducting fibers of the fabric.

2. The NuMetrex<sup>TM</sup> Sportsbra Does Not Literally Infringe Claim 13

It is readily apparent that, like claim 1, claim 13 of the ‘482 patent, properly construed, is not literally infringed by the NuMetrex<sup>TM</sup> sportsbra, for the following reasons:

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First, unlike the claimed fabric, the NuMetrex<sup>TM</sup> sportsbra lacks any penetration detection component. There are no optical fibers or other means in the NuMetrex<sup>TM</sup> sportsbra for detecting penetration of the fabric.

Second, in the event that the plurality of signal transmission paths of the accused product has an electrical conductive component for monitoring vital signs, claim 13, properly construed in light of the specification and prosecution history, requires that the conductive fibers of that component be integrated into a single layer of fabric, that the conductive fibers be individually insulated, and that there not be direct electrical contact between the conductive fibers and the wearer's skin. Unlike the claimed conductive fibers, all of the conductive fibers in the NuMetrex<sup>TM</sup> sportsbra are *uninsulated*. In addition, the conductive fibers of the NuMetrex<sup>TM</sup> sportsbra are integrated into two layers of fabric, and do have electrical contact with the wearer's skin. Thus, the "electrical conductive component" limitation of claim 13 is not met by the NuMetrex<sup>TM</sup> sportsbra.

Because none of the "fabric," "plurality of signal transmission paths," "penetration detection component," and "electrical conductive component" limitations recited in claim 13 is present in the NuMetrex<sup>TM</sup> sportsbra, the NuMetrex<sup>TM</sup> sportsbra does not literally infringe claim 13.

### 3. Claim 13 Is Not Infringed Under the Doctrine of Equivalents

Claim 13 has the same "fabric," "penetration detection component," and "electrical conductive component" limitations as claim 1. As with claim 1, the November 27, 2000 amendment added the latter two limitations in response to the examiner's Section 102 rejections over Axelgaard and Flick (November 27, 2000 amendment and response, pages 4, 8-9, 12), and the October 30, 2001 amendment added the narrowing phrase "said electrical conductive component comprising one or more individually insulated conductive fibers" in response to the examiner's continued rejection of claim 13 over Flick. (October 30, 2001 amendment and response at pages 6, 9.) *A fortiori*, the same prosecution history estoppels that apply to claim 1 of the '482 patent will preclude any argument that the NuMetrex<sup>TM</sup> sportsbra infringes claim 13 under the doctrine of equivalents. See, e.g., *Allen Eng.*, 299 F.3d at 1350 (argument-based estoppel affecting a limitation in one claim will also extend to all claims in which that limitation appears); *Glaxo Wellcome, Inc. v. Impax Labs., Inc.*, 356 F.3d 1348, 1356 (Fed. Cir. 2004) (amendment-based estoppel affecting a limitation in one claim will also extend to all claims in which that limitation appears).

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C. None of the '482 Patent's Dependent Claims  
Are Infringed by the NuMetrex<sup>TM</sup> Sportsbra

For the reasons discussed in Part I.D. *supra*, where, as here, neither of the '482 patent's independent claims is infringed by the NuMetrex<sup>TM</sup> sportsbra, it follows that none of the '482 patent's dependent claims is infringed, and no separate analysis of the dependent claims is needed. *E.g.*, *Oak Tech.*, 248 F.3d at 1323 n.4; *Strattec Security*, 126 F.3d at 1416.

III. U.S. Patent No. 6,145,551

The '551 patent has 43 claims, three of which are independent claims -- 1, 9, and 24. Claim 1 recites "[a] process for continually weaving a full-fashioned garment, comprising the steps of:" (a) providing at least two sets of warp threads to be used alternately for the front and back of the garment; (b) providing at least two sets of filling threads; (c) weaving a tubular structure section along the direction of the warp threads; and (d) weaving a double layer structure section also along the direction of the warp threads, at least a portion of each layer being separated from at least a portion of the other layer; and (e) the tubular structure section and the double layer structure section being woven continuously one from the other to form the garment.

Claim 9 recites "[a] woven garment comprising:" (a) a tubular section woven along the direction of the warp threads; (b) a double layer structure section also woven along the direction of the warp threads, at least a portion of each layer being separated from at least a portion of the other layer; and (c) the tubular structure section and the double layer structure section being woven continuously one from the other to form the garment.

Claim 24 recites "[a] woven garment comprising:" (a) a first tubular section being formed from a plurality of threads; (b) a second section continuously formed from the plurality of threads; and (c) the second section comprising at least two portions which are partially separated from each other and have at least two openings, one formed in each side of the second section opposite each other.

For at least the reasons set forth below, none of the '551 patent claims is infringed by the NuMetrex<sup>TM</sup> sportsbra, either literally or under the doctrine of equivalents.

A. Construction of Independent Claims 1, 9, and 24

The preambles of independent claims 1, 9, and 24 recite either a weaving process or a woven garment. The "process for continuously weaving a full-fashioned garment" recited in the preamble of claim 1 provides the antecedent basis for the "weaving" limitations in the third and fourth steps and the "garment" limitation in the last step of the claim. The woven garment

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recited in the preamble of claims 9 and 24 provides the antecedent basis for the "garment" limitation that appears at the end of each of these claims.

The preamble of a claim constitutes a claim limitation when the preamble limitations "are necessary to give meaning to the claim and properly define the invention." *E.g., Gerber Garment Tech., Inc. v. Lectra Sys., Inc.*, 916 F.2d 683, 688 (Fed. Cir. 1990), quoting *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 896 (Fed. Cir. 1984).<sup>4</sup> When, as here, limitations in the body of the claim rely upon and derive antecedent basis from the preamble, the preamble acts as a necessary component of the claimed invention, and must be treated as a claim limitation. *E.g., Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003); 66 U.S.P.Q.2d (BNA) 1271, 1276 (Fed. Cir. 2003); *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305-06 (Fed. Cir. 1999).

Moreover, here, the applicants argued in response to the examiner's rejection over U.S. Patent No. 4,668,545 ("Lowe") that the preamble of the claims did constitute express structural and functional limitations (April 7, 2000 response, pages 6-7), and that among other distinctions, the woven aspect of the claimed garment recited in the claim preamble distinguished over Lowe. (*Id.* at page 7 ("Lowe neither teaches nor suggests an article that is wearable as a garment, let alone a garment fashioned from a continuous, woven fabric."); *see also id.* at page 10 ("As Granek et al. neither teaches or suggests woven garments having integral conductive paths, the present invention is structurally distinct from that of Granek et al.")) The Federal Circuit has made clear that arguments made during prosecution may demonstrate the applicant's intent that words in a preamble be given significance as claim limitations. *Strattec Security*, 126 F.3d at 1416-18. Thus, it is our opinion that the preambles of claims 1, 9, and 24 should be given full effect as claim limitations.

Because the weaving process and woven garment phrases in the preamble of claims 1, 9, and 24 should be given effect as claim limitations, statements in the '551 specification which describe a "weaving process" and a "woven garment" as "the present invention" limit the claims to a weaving process and a woven garment. The '551 specification describes the "the present invention" as a "full fashioned woven garment[.]" ('551 patent. 1, ll. 63-64.) In addition, the specification repeatedly describes "a full-fashioned woven garment . . . made in accordance with the present invention . . ." (*e.g., id.* at col. 3, ll. 64-65) and a "full-fashioned weaving process . . . of the present invention . . ." (*e.g., id.* at col. 3, ll. 60-61). The specification also states that "[i]t

<sup>4</sup> In *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997), the Federal Circuit explained that "[w]here a patentee uses the claim preamble to recite structural limitations of his claimed invention, the . . . courts give effect to that usage. Conversely, where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation."



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can be seen from the description herein of our invention that a full-fashioned weaving process is provided, by which a full-fashioned woven garment can be made . . . , and by which a sensate garment can be made.” (*Id.* at col. 3, ll. 20-25.) A “flyer embodiment” is also disclosed, which includes a sensate liner for monitoring one or more vital body signs. This embodiment is described as “the woven garment made in accordance with the present invention . . .” (*id.* at col. 2, l. 66- col. 3, l. 4; *see also id.* at col. 6, ll. 5-6), and the process for making it is described as “the full-fashioned weaving process of the present invention . . .” (*id.* at col. 3, ll. 17-18).

Statements such as these in the specification describing “the woven garment made in accordance with the present invention” and “the full-fashioned weaving process of the present invention” limit the claimed invention to woven garments and the use of a weaving process. *See, e.g., Watts v. XL Sys., Inc.*, 232 F.3d 877, 883 (Fed. Cir. 2000) (specification’s description of “the present invention” limits the claimed invention); *Astrazeneca AB v. Mutual Pharm. Co.*, 384 F.3d 1333, 1339-40 (Fed. Cir. 2004) (same).

In addition, where, as here, the applicants have made arguments to the examiner disavowing non-woven fabrics to obtain the claims, the doctrine of prosecution history disclaimer narrows the meaning of the claim congruent with the scope of the surrender. *E.g., Omega Eng.*, 334 F.3d at 1324. For all these reasons, claim 1 should be construed as being limited to a weaving process, claims 9 and 24 should be construed as being limited to a woven garment, and claims 1, 9, and 24 should all be construed to disclaim coverage of non-woven garments.

B. The NuMetrex<sup>TM</sup> Sportsbra Does Not Literally  
 Infringe Any Independent Claim of the ‘551 Patent

Claims 1, 9, and 24 of the ‘551 patent are not literally infringed by the NuMetrex<sup>TM</sup> sportsbra, because claim 1, properly construed, requires a weaving process, and claims 9 and 24, properly construed, require a woven garment. The NuMetrex<sup>TM</sup> sportsbra is a knitted garment, and no portion of the NuMetrex<sup>TM</sup> sportsbra is woven. Accordingly, neither the weaving process limitation of claim 1 nor the woven garment limitation of claims 9 and 24 is met by the NuMetrex<sup>TM</sup> sportsbra.

As discussed in Part II.A.2. *supra*, there can be no literal infringement even if only one limitation is missing in the accused product. *E.g., Cortland Line*, 203 F.3d at 1358; *Pennwalt*, 833 F.2d at 934. Because the weaving process limitation of claim 1 and the woven garment limitation of claims 9 and 24 are not present in the accused product, the NuMetrex<sup>TM</sup> sportsbra does not literally infringe any of those claims.

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C. The NuMetrex<sup>TM</sup> Sportsbra Does Not Infringe Any Independent Claim of the '551 Patent Under the Doctrine of Equivalents

Neither the weaving process limitation of claim 1 nor the woven garment limitation of claims 9 and 24 is infringed under the doctrine of equivalents, for the following reasons:

First, the Federal Circuit has made clear that the scope of equivalents is limited by statements in the specification that disclaim subject matter. *E.g.*, *J & M Corp. v. Harley-Davidson, Inc.*, 269 F.3d 1360, 1366 (Fed. Cir. 2001); *Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340-45 (Fed. Cir. 2001). Thus, an unequivocal disavowal of subject matter in the patent specification precludes application of the doctrine of equivalents to recapture the disavowed subject matter. *Astrazeneca*, 384 F.3d at 1342; *Scimed*, 242 F.3d at 1340-45. Where, as here, the specification describes the claimed "weaving process" and "woven garment" as "the present invention," these statements should be treated as an unequivocal disavowal of non-woven garments, and preclude argument under the doctrine of equivalents to recapture that disavowed subject matter. *See, e.g.*, *Watts*, 232 F.3d at 883; *Astrazeneca*, 384 F.3d at 1339-40.

Second, where, as here, the applicants have made arguments to the examiner disavowing non-woven fabrics to distinguish prior art (*see* discussion in Part III.A. *supra*), the doctrine of prosecution history estoppel precludes argument that the NuMetrex<sup>TM</sup> sportsbra -- which is a knitted, non-woven garment -- infringes claims 1, 9, or 24 under the doctrine of equivalents. *See, e.g.*, *Haynes*, 8 F.3d at 1579; *Southwall Techs.*, 54 F.3d at 1581-83.

Third, it is well-settled that there can be no infringement under the doctrine of equivalents where, as here, a limitation is completely missing from an accused device. *E.g.*, *Sage Prods.*, 126 F.3d at 1424-26; *General Am. Trans.*, 93 F.3d at 771.

D. None of the '551 Patent's Dependent Claims Are Infringed by the NuMetrex<sup>TM</sup> Sportsbra

For the reasons discussed in Part I.D. *supra*, where, as here, none of the '551 patent's independent claims is infringed by the NuMetrex<sup>TM</sup> sportsbra, it follows that none of the '551 patent's dependent claims is infringed, and no separate analysis of the dependent claims is needed. *E.g.*, *Oak Tech.*, 248 F.3d at 1323 n.4; *Strattec Security*, 126 F.3d at 1416.

IV. U.S. Patent No. 6,474,367 B1

The '367 patent has 10 claims, four of which are independent -- *i.e.*, claims 1, 5, 6, and 7. Claim 1 recites a process for "producing a one-piece garment from a single piece of two-dimensional fabric . . . ." Claim 5 recites a "garment with legs . . . ." Claim 6 recites a "garment

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with legs and sleeves . . . .” Claim 7 recites a process for “producing a one-piece garment with legs, and optionally with sleeves . . . .”

For at least the reasons set forth below, none of the ‘367 patent claims is infringed by the NuMetrex™ sportsbra, either literally or under the doctrine of equivalents.

#### A. Construction of Independent Claims 1, 5, 6, and 7

The independent claims of the ‘367 patent, when read in light of the intrinsic record, should each be construed to require: (1) a garment with legs (claims 5 and 6) or a method of producing a garment with legs (claim 1 and 7); and (2) a garment made from a single piece of two-dimensional fabric (claims 5 and 6) or a method of producing such a garment (claims 1 and 7). In this regard, the independent claims of the ‘367 patent individually recite: “[a] process for producing a one-piece garment from a single piece of two-dimensional fabric” (claim 1),<sup>5</sup> “[a] garment with legs” (claim 5); “[a] garment with legs and sleeves” (claim 6); and “[a] process for producing a one-piece garment with legs, and optionally with sleeves” (claim 7).

While the above terms appear in the preambles of different independent claims of the ‘367 patent, applicants used a combination of these terms during prosecution to describe the scope of their invention. Thus, during prosecution of the ‘367 patent, applicants attempted to distinguish the prior art Johansson patent by arguing that “the present invention is directed to a process for preparing a garment having legs, and optionally having arms (see Applicants’ Figure 1), from a single piece of fabric which utilizes very specific, folding, cutting and constructing steps . . . .” (March 12, 2002 amendment and response, pages 6-7.) This argument is consistent with the ‘367 specification, which states “[i]t is . . . an object of the present invention to provide a one-piece garment with legs, and optionally with sleeves, which garment is comprised of only a single integrated piece of woven, knitted or nonwoven fabric and seams.” (‘367 patent, col. 2, ll. 7-11.) The ‘367 specification further states that “[t]he present invention is directed to a process for producing a one-piece garment from a single piece of two-dimensional fabric . . . .” (*Id.*, col. 2, ll. 34-36.)

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<sup>5</sup> While claim 1 does not specifically recite the term “legs,” production of a garment with legs would necessarily result from following the steps recited in the claim (*see* FIG. 1 of the ‘367 patent and the accompanying discussion at col. 4, ll. 16-38). Moreover, as discussed in the text *infra*, during prosecution, the applicants characterized “the present invention” as “directed to a process for preparing a garment having legs . . . ,” thereby limiting the processes of claims 1 and 7 to one that prepares a garment having legs.

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As discussed in Part III.A. *supra*, statements such as these in the specification describing “the present invention” as directed to a process for producing “a one-piece garment from a single piece of two-dimensional fabric . . .” limit the process claims (claims 1 and 7) to a process for producing a one-piece garment from a single piece of two-dimensional fabric. *See, e.g., Watts*, 232 F.3d at 883 (specification’s description of “the present invention” limits the claimed invention); *Astrazeneca*, 384 F.3d at 1339-40 (same).

In addition, where, as here, the applicants made an argument to the examiner disavowing garments that do not have legs and are that are not made of a single piece of fabric, the doctrine of prosecution history disclaimer narrows the meaning of the claims congruent with the scope of the surrender. *E.g., Omega Eng.*, 334 F.3d at 1324. For all these reasons, the ‘367 patent’s independent claims should be construed to require: (1) a garment that has legs, or a method of producing a garment that has legs; and (2) a one-piece garment made from a single piece of two-dimensional fabric, or a method of producing a one-piece garment from a single piece of two-dimensional fabric.

B. The NuMetrex™ Sportsbra Does Not Literally  
Infringe Any Independent Claim of the ‘367 Patent

The NuMetrex™ sportsbra does not literally infringe any independent claim of the ‘367 patent for at least the following reasons:

First, the NuMetrex™ sportsbra does not have legs.

Second, the NuMetrex™ sportsbra is not made from a single piece of fabric. Instead, it directly fabricated (from *e.g.*, yarns) into a three-dimensional fabric via a circular knitting process.

As discussed in Part II.A.2. *supra*, there can be no literal infringement even if only one limitation is missing in the accused product. *E.g., Cortland Line*, 203 F.3d at 1358; *Pennwalt*, 833 F.2d at 934. The independent claims of the ‘367 patent, properly construed, are limited to a garment that has legs, and a process for making a garment that has legs, and require that the garment be made from a single piece of two-dimensional fabric. Because none of these limitations is present in the NuMetrex™ sportsbra, the NuMetrex™ sportsbra does not literally infringe any of those claims.

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C. The NuMetrex™ Sportsbra Does Not Infringe Any Independent Claim of the '367 Patent Under the Doctrine of Equivalents

The NuMetrex™ sportsbra does not infringe any independent claim of the '367 patent under the doctrine of equivalents for at least the following reasons:

First, prosecution history estoppel will preclude Sensatex from arguing that the NuMetrex™ sportsbra infringes any independent claim of the '367 patent under the doctrine of equivalents. As discussed in Part IV.A. *supra*, applicants argued during prosecution that their invention was “directed to a process for preparing a garment having legs, and optionally having arms . . . .” (March 12, 2002 amendment and response, pages 6-7). They further argued that garments made according to their invention were made “from a single piece of fabric” utilizing “very specific, folding, cutting and constructing steps . . . .” (*Id.*) The NuMetrex™ sportsbra does not have legs and is not made from a single piece of two-dimensional fabric. Because the applicants disavowed those characteristics of the NuMetrex™ sportsbra in an effort to distinguish the prior art and obtain allowance, Sensatex is estopped from seeking to re-capture those characteristics under the doctrine of equivalents. *E.g., Allen Eng.*, 299 F.3d at 1350; *Southwall Techs.*, 54 F.3d at 1584.

Second, as discussed in Part I.A.3. *supra*, there can be no infringement under the doctrine of equivalents when a limitation is completely missing from an accused device. *E.g., Sage Prods.*, 126 F.3d at 1424-26; *General Am. Trans.*, 93 F.3d at 771. Here, each independent claim of the '367 patent, properly construed, requires at least one element that is completely absent from the NuMetrex™ sportsbra.

D. The NuMetrex™ Sportsbra Does Not Infringe Any Dependent Claim of the '367 Patent

As discussed in Part I.D. *supra*, one cannot infringe a dependent claim unless also infringing the parent or base claim on which it depends. Where, as here, none of the '367 patent's independent claims is infringed by the NuMetrex™ sportsbra, it follows *a fortiori* that none of the '367 patent's dependent claims is infringed.

V. U.S. Patent No. 6,941,775 B1

The '775 patent has 57 claims, seven of which are independent – *i.e.*, claims 1, 32, and 53-57. For at least the reasons set forth below, none of the '775 patent claims is infringed by the NuMetrex™ sportsbra, either literally or under the doctrine of equivalents.



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A. Construction of Independent Claims 1, 32, and 53-57

The independent claims of the '775 patent, when read in light of the intrinsic record, and particularly when read in light of the plain language of the claims, should each be construed to require a functional yarn embedded in a tubular fabric sleeve, wherein the functional yarn longitudinally extends the length of said sleeve in a continuous spiral configuration. Each of the independent claims of the '775 patent recite a "tubular fabric sleeve" having a "functional yarn embedded in said tubular fabric sleeve in a continuous spiral configuration which longitudinally extends the length of said sleeve."

The terms "continuous spiral configuration" found in each of the independent claims of the '775 patent should be further construed to require that at least one functional yarn spirals continually around the circumference of the tubular fabric, for the entire length of the fabric sleeve, without discontinuations or cuts. This construction is supported by the specification of the '775 patent, which, in distinguishing the claimed invention from the prior art Maiden Mills patents, states that the prior art teaches tubular knit fabrics incorporating functional yarns that are cut such that they fail to continuously spiral around the circumference of the tubular fabric. In characterizing the tubular knit fabric of the prior art Maiden Mills patents (which is illustrated in FIG. 4 of the '775 patent), the specification states: "[B]ecause tubular knit fabric 49 is longitudinally cut, the continuity of the embedded conductive yarn 49, Fig. 4A, is destroyed resulting in series 53, FIG. 4B, of conductive yarns . . . which must be interconnected by bus 55." ('775 patent, col. 8, ll. 30-34.) The specification then contrasts "the subject invention" with this prior art by noting: "In contrast, tubular knit fabric 56, FIGS. 5A-5C of the subject invention includes at least one insulative yarn 58, at least one stretchable yarn 60, and at least one functional yarn 62 knitted together to define tubular fabric sleeve 64, FIG. 6, having functional yarn 62 embedded in tubular fabric sleeve 64 in continuous spiral configuration 66 which longitudinally extends the length of sleeve 64." (*Id.*, col. 8, ll. 47-53.)<sup>6</sup>

<sup>6</sup> The specification continues with a description of one example in which the continuous spiral configuration "may extend almost the entire length of tubular fabric sleeve 64 or a considerable portion of the length of tubular fabric sleeve 64." (*Id.*, col. 8, ll. 53-57.) The specification also describes "other examples," in which "continuous spiral configuration 66 may extend only a portion of tubular knit fabric 56, such as shown in FIGS. 10B and 11B." (*Id.*, col. 8, ll. 57-60.) The description of "other examples" does not shed light on the meaning or scope of the '775 patent claims, each of which includes the express limitation reciting a "functional yarn embedded in said tubular fabric sleeve in a continuous spiral configuration which *longitudinally extends the length of said sleeve.*" In addition, the specification's description of "other examples" is not part of the applicants' argument distinguishing the subject invention over the Maiden Mills patents. That distinction in the '775 specification expressly states that "the tubular

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Where, as here, the specification distinguishes the prior art by unequivocally disavowing fabrics in which the functional yarn is not embedded in a continuous spiral that longitudinally extends the length of the sleeve, the claims should be construed as disavowing that subject matter. *See, e.g., Astrazeneca*, 384 F.3d at 1338-40; *Scimed*, 242 F.3d at 1340-45.

B. The NuMetrex™ Sportsbra Does Not Literally  
 Infringe Any Independent Claim of the '775 Patent

The NuMetrex™ sportsbra does not literally infringe any independent claim of the '775 patent for at least the reason that it does not contain a functional yarn that longitudinally extends along the length of a fabric sleeve in a continuous spiral configuration. Instead, the conductive fibers of the NuMetrex™ sportsbra are located in fabric-based sensors. As can be seen in the photograph appended at Attachment "B," and as you can confirm from inspection of a commercially-available physical sample of the NuMetrex™ sportsbra, these sensors comprise only isolated sections of the garment, thereby forming a conductive patch area, with the ends of the conductive fibers being cut at the ends of the patch area. The NuMetrex™ sportsbra does not contain any conductive fiber that spirals continuously around the circumference of a fabric sleeve for any length of the sleeve, much less the entire length of the sleeve, and thus does not literally infringe any independent claim of the '775 patent.

C. The NuMetrex™ Sportsbra Does Not Infringe Any Independent  
 Claim of the '775 Patent Under the Doctrine of Equivalents

The NuMetrex™ sportsbra also does not infringe any independent claim of the '775 patent under the doctrine of equivalents for at least the following reasons:

The Federal Circuit has made clear that the scope of equivalents is limited by statements in the specification that disclaim subject matter. *E.g., J & M*, 269 F.3d at 1366; *Scimed*, 242 F.3d at 1340-45. Where, as here, the applicants made unequivocal statements in the '775 specification that disavowed fabrics in which the functional yarn is not embedded in a continuous spiral that longitudinally extends the length of the sleeve, those statements preclude

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Footnote continued from previous page ...

knit fabric . . . of the subject invention . . . " differs from the Maiden Mills patents, because it has "functional yarn 62 embedded in tubular fabric sleeve 64 in continuous spiral configuration 66 which longitudinally extends the length of sleeve 64." (*Id.*, col. 8, ll. 47-53 (emphasis added).) The wording of that argument unequivocally disavows fabrics in which the functional yarn does not extend the entire length of the fabric sleeve.

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application of the doctrine of equivalents to recapture the disavowed subject matter. *Astrazeneca*, 384 F.3d at 1342; *Scimed*, 242 F.3d at 1340-45.

As discussed in Part V.A. *supra*, the specification of the '775 patent differentiates the applicants' invention from the prior art by emphasizing that the prior art teaches "tubular knit fabric" having a conductive yarn that is "longitudinally cut[.]" thereby destroying the "continuity of the embedded conductive yarn" and requiring "interconnect[ion] by [a] bus . . . ." ('775 patent, col. 8, ll. 30-34.) The specification then contrasts the applicants' invention by stating that it results in a "functional yarn . . . embedded in [a] tubular fabric sleeve . . . in continuous spiral configuration . . . which longitudinally extends the length of [the] sleeve . . . ." (*Id.*, col. 8, ll. 47-53.) In an effort to distinguish the prior art, the '775 specification unequivocally disavows fabrics, like the fabric in the NuMetrex™ sportsbra, in which the functional yarn is not embedded in a continuous spiral that longitudinally extends the length of the sleeve. The '775 specification thereby precludes application of the doctrine of equivalents to recapture fabrics like the one in the NuMetrex™ sportsbra.

Second, even if the doctrine of equivalents were applicable here, the NuMetrex™ sportsbra would not infringe any independent claim of the '775 patent under the doctrine of equivalents, because infringement may be found under the doctrine of equivalents only when the differences between the features of the accused product or process and the claimed invention *are insubstantial*. *E.g.*, *Hilton Davis*, 62 F.3d at 1517-19; *Dawn Equip.*, 140 F.3d at 1015. The distinctions drawn in the '775 specification between the fabric of the prior art Maiden Mills patents and the fabric of the claimed invention make clear that the differences between the claimed invention (which must have conductive fiber that spirals continuously around the circumference of a fabric sleeve for the length of the sleeve) and the NuMetrex™ sportsbra (which does not have conductive fibers that spiral continuously around the circumference of a fabric sleeve for any length, much less the entire length of a fabric sleeve) are substantial.

In sum, because the conductive fibers of the NuMetrex™ sportsbra are located in fabric-based sensors that comprise only isolated sections of the garment, and the conductive fibers do not spiral continuously around the circumference of a fabric sleeve for any length, much less the entire length of a fabric sleeve, the NuMetrex™ sportsbra cannot infringe any independent claim of the '775 patent under the doctrine of equivalents.

#### D. The NuMetrex™ Sportsbra Does Not Infringe Any Dependent Claim of the '775 Patent

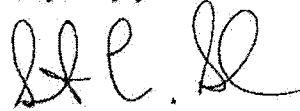
As discussed in Part I.D. *supra*, one cannot infringe a dependent claim unless also infringing the parent or base claim on which it depends. Where, as here, none of the '775 patent's independent claims is infringed by the NuMetrex™ sportsbra, it follows *a fortiori* that none of the '775 patent's dependent claims is infringed.

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VI. Conclusion

It is beyond genuine dispute that the '731, '482, '551, '367, and '775 patents are not infringed, either literally or under the doctrine of equivalents, by the NuMetrex<sup>TM</sup> sportsbra. We look forward to your response and to a prompt resolution of any remaining open issues you may wish to discuss after you have had an opportunity to review this letter, the asserted patents, and the respective intrinsic records for each patent.

Very truly yours,

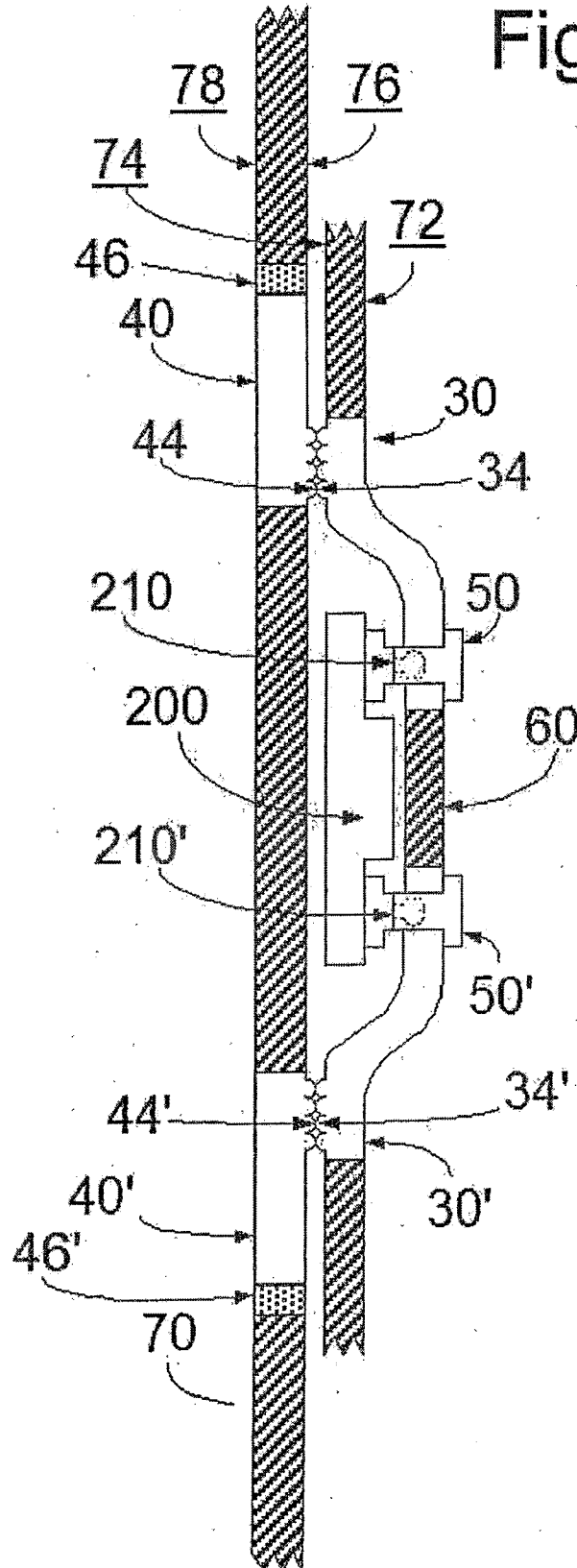
A handwritten signature in black ink, appearing to read "S.L. Sulzer", with a stylized flourish at the end.

Stephen L. Sulzer

Cc: Stacey B. Burr

EXHIBIT A

Fig. 4.





#### DESCRIPTION OF FIG. 4

A means for adapting 50 and 50' for receiving and sending electrical signals is represented with the aid of FIG. 4. In this figure, fabric portion 70 is represented from a view between surfaces 74 and 76, which are facing one another as a result of folding 70 about horizontal axis AA' (as shown in FIG. 3B). Surface 78 (the side adapted to be in contact with a wearer's skin) contains conductive yarn portions 40 and 40' and surface 72 contains conductive yarn portions 30 and 30'. Between surfaces 76 and 74, conductive float yarn portions 44 and 44' are brought into physical contact with conductive float yarn portions 34 and 34', thereby providing electrical continuity between conductive yarn portions 40 and 40' and conductive yarn portions 30 and 30'.

Electrically conductive contacts 50 and 50' are respectively attached to conductive yarn portions 30 and 30'. Electrically conductive contacts 50 and 50' may be made of any electrically conductive material, such as, for example, metallic conductors. Electrically conductive contacts 50 and 50' can be attached to conductive yarn portions 30 and 30' such that they communicate through 30 and 30' and are capable of contacting or engaging with electrically conductive contacts 210 and 210' respectively. Electrically conductive contacts 210 and 210' are associated with 200, an electrical device.

Electrical device 200 is represented in FIG. 4 as being placed between surfaces 74 and 76 of the folded over fabric portion 70. As a result, an electrical signal originating at conductive yarn portions 40 and 40' can be conducted directly to electrically conductive contacts 210 and 210' (as well as to 30 and 30'), respectively, which are each associated with electrical device 200. Alternatively, an electrical signal originating with electrical device 200 may be conducted directly to electrically conductive contacts 210 and 210' (as well as to 30 and 30'), and thereon to conductive yarn portions 40 and 40'.

An embodiment including optional yarns 60 is shown in FIG. 4, where the optional yarns 60 include, for example, PTFE filaments. The use of optional filaments 60 reduces the possibility of short circuiting of the textile-based electrodes in garments expected to be worn by heavily perspiring wearers. In one embodiment, the PTFE filaments can be wrapped about or twisted with LYCRA® brand spandex yarns. Otherwise, these yarns need no special preparation and can be readily integrated with the traditional textile filaments of the garment construction.

